SECRET

OSA - #302-63

Frank

File
GN-764-1
David/Clark
CP

JAR-794-166
31 July 1963

Subject: Contract GN-764-1

Gentlemen:

Enclosed are copies of S901E Purchase Description and 12 Category Height-Weight Sizing Program forwarded for review and information.

Provisioning Parts Breakdown, revised to include suggested Depot Spares, will be forwarded upon completion of study of usage and experience data compiled on current equipment.

Cordially,

25X1A

[redacted]

JEF:rm

Enc.

25X1A

COPY FOR [redacted]

PURCHASE DESCRIPTION

S-901E Flying Outfit, Full Pressure, High Altitude, consists of the following Major Components:

Item #1		Helmet Assembly ACS-88ON - Less ACS-666 Exhalation Valve and Regulator - Hose Assembly, Male & Hose Assembly, Female.
Item #2		Exhalation Valve - ACS-666.
Item #3	ACS-1220	Regulator - Helmet.
Item #4	ACS-1221	Hose Assembly - Male.
Item #5	ACS-1222	Hose Assembly - Female - Helmet.
Item #6		Suit Assembly - ACS-764 - Less Gloves ACS-368.
Item #7		Gloves, Full Pressure - ACS-368.
Item #8		Exterior Coverall - ACS-434.
Item #9		Floatation Garment - ACS-422.
Item #10		Leather Boots - ACS-516.
Item #11		Fabric Boots - ACS-730.
Item #12	ACS-1223	Hose Assembly - Male (Internal) Suit.
Item #13	ACS-1224	Hose Assembly - Female (Internal) Suit.
Item #14	ACS-1225	Hose Assembly - Left Hand (External) Suit.
Item #15	ACS-1226	Hose Assembly - Right Hand (External) Suit.
Item #16	ACS-1227	Controller
Item #17		Underwear (2) Sets.
Item #18	ACS-1228	Suit Case Assembly.

12 CATEGORY HEIGHT – WEIGHT SIZING PROGRAM
(based on measurements from WADC TR 52-321)

	Height (inches)	Weight (pounds)	Vert. Trunk Circ. (Stand.)	Crotch Height *1.	Upper Leg Length *2.	Lower Leg Length *3.	Sleeve Length *4.	Biacromial Diameter
Small Short	63.00-65.90	125-149	64.00	30.625	11.750	15.625	31.695	14.50-16.25
Small Reg.	66.00-68.90	125-149	64.75	32.000	12.250	16.375	32.615	14.50-16.25
Small Long	69.00-71.90	125-149	65.75	33.625	13.000	17.125	33.390	14.50-16.25
Medium Short	64.50-67.40	150-174	66.25	31.125	11.875	15.875	32.525	14.75-16.75
Medium Reg.	67.50-70.40	150-174	67.25	33.000	12.750	16.750	33.500	14.75-16.75
Medium Long	70.50-73.40	150-174	68.00	34.500	13.250	17.750	33.935	14.75-16.75
Large Short	66.00-68.90	175-199	69.25	31.875	12.000	16.375	32.700	15.25-17.00
Large Reg.	69.00-71.90	175-199	70.00	33.500	12.750	17.250	33.945	15.25-17.00
Large Long	72.00-74.90	175-199	70.00	35.000	13.500	17.875	34.505	15.25-17.00
X-Large Short	67.50-70.40	200-224	71.75	32.500	12.125	16.875	33.885	15.50-17.25
X-Large Reg.	70.50-78.40	200-224	72.00	34.125	12.875	17.750	34.570	15.50-17.25
X-Large long	73.50-76.40	200-224	73.00	35.000	12.875	18.375	35.190	15.50-17.25

	Shoulder Elbow	Elbow Wrist	Neck Circ.	Chest Circ.	Waist Circ.	Buttock Circ. (standing)	Thigh Circ.
Small Short	13.500	10.070	13.50-15.50	34.25-39.00	27.25-31.25	33.50-37.25	18.75-22.75
Small Reg.	14.000	10.490	13.50-15.50	34.25-39.00	27.25-31.25	33.50-37.25	18.75-22.75
Small Long	14.500	10.765	13.50-15.50	34.25-39.00	27.25-31.25	33.50-37.25	18.75-22.75
Medium Short	13.750	10.400	14.00-16.00	36.00-41.00	29.00-34.00	35.50-39.50	20.25-24.25
Medium Reg.	14.375	10.750	14.00-16.00	36.00-41.00	29.00-34.00	35.50-39.50	20.25-24.25
Medium Long	14.750	10.880	14.00-16.00	36.00-41.00	29.00-34.00	35.50-39.50	20.25-24.25
Large Short	13.750	10.450	14.50-16.50	38.00-43.25	31.50-37.00	37.75-41.75	21.75-25.50
Large Reg.	14.625	10.820	14.50-16.50	38.00-43.25	31.50-37.00	37.75-41.75	21.75-25.50
Large Long	15.125	10.880	14.50-16.50	38.00-43.25	31.50-37.00	37.75-41.75	21.75-25.50
X-Large Short	14.500	10.760	15.00-17.00	40.50-45.25	34.25-39.75	40.00-43.75	23.00-27.00
X-Large Reg.	14.875	11.070	15.00-17.00	40.50-45.25	34.25-39.75	40.00-43.75	23.00-27.00
X-Large Long	15.375	11.190	15.00-17.00	40.50-45.25	34.25-39.75	40.00-43.75	23.00-27.00

12 Category Height-Weight Sizing Program

	Lower Thigh Circ.	Knee Circ.	Calf Circ.	Ankle Circ.	Scye Circ.	Biceps Circ. (Flexed)	Elbow Circ. (Flexed)
Small Short	14.25–18.00	14.50	12.50–14.75	7.75–9.25	15.50–19.00	10.50–13.25	12.75
Small Reg.	14.25–18.00	14.50	12.50–14.75	7.75–9.25	15.50–19.00	10.50–13.25	12.75
Small Long	14.25–18.00	14.50	12.50–14.75	7.75–9.25	15.50–19.00	10.50–13.25	12.75
Medium Short	15.50–19.00	15.50	13.25–15.50	8.25–9.75	16.25–19.75	11.25–14.00	13.00
Medium Reg.	15.50–19.00	15.50	13.25–15.50	8.25–9.75	16.25–19.75	11.25–14.00	13.00
Medium Long	15.50–19.00	15.50	13.25–15.50	8.25–9.75	16.25–19.75	11.25–14.00	13.00
Large Short	16.50–20.00	16.25	14.00–16.25	8.50–10.00	17.00–20.75	12.00–14.75	13.50
Large Reg.	16.50–20.00	16.25	14.00–16.25	8.50–10.00	17.00–20.75	12.00–14.75	13.50
Large Long	16.50–20.00	16.25	14.00–16.25	8.50–10.00	17.00–20.75	12.00–14.75	13.50
X-Large Short	17.50–20.75	17.00	14.50–17.00	9.00–10.50	17.75–21.50	13.00–15.75	14.25
X-Large Reg.	17.50–20.75	17.00	14.50–17.00	9.00–10.50	17.75–21.50	13.00–15.75	14.25
X-Large Long	17.50–20.75	17.00	14.50–17.00	9.00–10.50	17.75–21.50	13.00–15.75	14.25

	Forearm (Flexed)	Wrist Circ.
Small Short	10.00–11.75	6.00–7.00
Small Reg.	10.00–11.75	6.00–7.00
Small Long	10.00–11.75	6.00–7.00
Medium Short	10.75–12.25	6.25–7.25
Medium Reg.	10.75–12.25	6.25–7.25
Medium Long	10.75–12.25	6.25–7.25
Large Short	11.00–12.75	6.50–7.50
Large Reg.	11.00–12.75	6.50–7.50
Large Long	11.00–12.75	6.50–7.50
X-Large Short	11.50–13.50	6.75–7.75
X-Large Reg.	11.50–13.50	6.75–7.75
X-Large Long	11.50–13.50	6.75–7.75

The following Notes are based on Height-Weight Sizing System Charts from WADC TR 52-321

*1. Mid-point of Crotch Height Range

*2. Mid-range of Crotch Height minus mid-range of Knee Cap Height equals Upper Leg Length.

*3. Mid-range of Knee Cap Height minus mid-range of Medial Malleolus Height equals Lower Leg Length.

*4. One half of Maximum Biacromial Diameter plus the mid-range of Shoulder-Elbow plus mid-range of Forearm-Hand Length minus mid-range Hand Length.

SECRET

File David Clark 7+8

28 October 1964

Dear Frank,

Item 1 of Contract GN-7641 has been completed. Our comments concerning the Specification, Maintenance Manual and Illustrated Parts Breakdown furnished as part of Item 1 have been forwarded to [redacted] and a copy thereof is attached. The revisions to the above documents are minor and are not considered sufficient to hold closing action on Item 1.

25X1A

Regards,

George

Atch

Maintenance Manual, Pilot's Protective Assembly

1. For purposes of clarity the word visor should be used instead of lens, ref page 3, paragraph e-4.

2. The type of lubricant to be used should be indicated, ref page 8, paragraph i.

3. The helmet is supplied with three sizes of crown pads. A sizing chart should be included to indicate the measurements for each size, ref page 9.

4. Verify and correct the measurements for the electrical check procedure so they agree throughout, ref pages 16 and 20.

5. Verify and correct the measurements for pressure check procedure so they agree throughout, ref pages 1, 2 and 18.

Specification, Pilot's Protective Assembly

1. The Project Support Office (Depot) has experienced difficulty in the past wherein a single item has been identified with two different part numbers caused by procurement directly as versus subcontract. For instance, the oxygen regulator is shown as P/N ACS-1220 for the S-901F suit, and previous procurement of the individually fitted suit may have this same part listed as a Firewel part number. Please check all S-901F and S-901G documents to insure that a single part number is used to prevent any duplication of parts provisioning.

2. Security provisions whereby all vendor identification is removed does not apply for the S-901G suit, or the S-901F suit for those which have not already been delivered.

3. Marking: Ref page 18, paragraph 3.3.2.2: Subject number is a carry over from previous security restrictions. All remaining S-901F and follow-on S-901G suits should provide a line for addition of the individual's name to which the suit is assigned. The size of the suit should be included and where a mixed size such as long arms on a medium torso, etc., this should be indicated.

S-901G FOLLOW-ON SUIT: The following Edwards comments are forwarded for your information for later discussion before incorporation:

Zipper: Design the suit to use a vertical zipper with an outer supporting zipper. Eliminate the suit cover and design the coverall so that it is zipped on the suit and donned in one piece. The coverall should protect the suit controller from windblast to prevent windblast loading.

Harness: The parachute harness should be integrated into the coverall but should be delayed until results of the Stabilized Seat Test Program are available and the additional changes that might result therefrom. Separate integrated harness vests for shirt sleeve flying would also be required at this time.

Liner: The liner should be installed with Velcro so removal for cleaning and working on the system will not be a major operation.

Bladder: The bladder should be constructed of the old MC-2 material which can be repaired without damage and will last longer. This change should be discussed as to background for the new material.

Bladder Boots: The bladder boots should be better shaped and have a sole that will not wrinkle when donning. Four sizes should also be provided as the present three are insufficient.

Vent: Direct channeling into the gloves and boots has been good and should be continued. The vent channels should be routed under the arms instead of over the shoulders. Tri-lock should be used in the back and seat for vent distribution when subjects are sitting in the aircraft for long periods.

Flotation Garment: Fabricate with the original MC-2 bladder cloth and reinforce areas that come in contact with hardware (such as controller). Use the small oral inflation hardware.

HELMET

Fit: The earphones should be spring loaded or sizing pads used for better fit.

Face Seal: Install face seal so it is connected further toward the front of the helmet. This will increase ease of installation and general repairs of the helmet.

Liner: Use the same size molded liner in each helmet with sizing pads inserted with Velcro. Moving of the face seal forward will make room for a liner with more coverage.

Vent: The vent air should be channeled to the top of the helmet and down through the liner.

Microphone: The microphone should be mounted to the hard shell and have stiff enough action so that it will stay where positioned or, an adjustable microphone with outside control should be designed.

Pressure Taps: The pressure taps should incorporate an anti-block feature so that the face seal will not block off the tap, cause false readings and cause water columns to spill over.

GLOVES

Restraint: The restraint bar should be of the present flex-inward type and the restraint straps positioned far enough back so not to cause pressure on the knuckles.

Bearings: Wrist bearings should be incorporated in the gloves.

HOSE FITTINGS: All hose fittings should be AN fittings rather than molded hoses.

SECRET

28 October 1964

Dear Frank,

25X1A

Item 1 of Contract GN-7641 has been completed. Our comments concerning the Specification, Maintenance Manual and Illustrated Parts Breakdown furnished as part of Item 1 have been forwarded to [redacted] and a copy thereof is attached. The revisions to the above documents are minor and are not considered sufficient to hold closing action on Item 1.

Regards,

Atch

George